**Vakakis, Alexander F.**; **Manevitch, Leonid I.**; **Mikhlin, Yuri V.**; **Pilipchuk, Valery N.**; **Zevin, Alexandr A.**

**Normal modes and localization in nonlinear systems.** (English) Zbl 0917.93001
Chichester: John Wiley & Sons. 568 p. (1996).

Publisher's description: This book is devoted to the study of vibrations of discrete and continuous nonlinear oscillators. Its unique approach is based on the concept of nonlinear normal mode (NNM). This concept provides an excellent framework for understanding and analyzing free and forced oscillations of mechanical systems, predicting bifurcations of solutions, and understanding a variety of essentially nonlinear phenomena, such as nonlinear localization and motion confinement in systems with symmetries.

**MSC:**

| | |
|---|---|
| 70-02 | Research exposition (monographs, survey articles) pertaining to mechanics of particles and systems |
| 70K25 | Free motions for nonlinear problems in mechanics |
| 70K40 | Forced motions for nonlinear problems in mechanics |
| 70J10 | Modal analysis in linear vibration theory |
| 34-02 | Research exposition (monographs, survey articles) pertaining to ordinary differential equations |
| 34C15 | Nonlinear oscillations and coupled oscillators for ordinary differential equations |
| 34C23 | Bifurcation theory for ordinary differential equations |



**Keywords:**

vibrations; oscillators; nonlinear normal mode; nonlinear localization; motion confinement; symmetries